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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,145	03/12/2004	Emmanouil I. Papadakis	96605/25UTL	6789

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EXAMINER
KIM, CHONG R

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *22 September 2004*.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-16* is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-16* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on *22 September 2004* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a) ☐ All   b) ☐ Some * c) ☐ None of:
       1. ☐ Certified copies of the priority documents have been received.
       2. ☐ Certified copies of the priority documents have been received in Application No. _____.
       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Requirement for Information under 37 CFR 1.105

1.   Applicant and the assignee of this application are required under 37 CFR 1.105 to

provide the following information that the examiner has determined is reasonably necessary to

the examination of this application.

In response to this requirement, please provide copies of each publication which any of

the applicants authored or co-authored and which describe the disclosed subject matter of

constructing an isotropic ideal window/filter using isotropic scaling functions and associated

translation operators.

In addition, please provide the title, citation and copy of each publication that any of the

applicants relied upon to develop the disclosed subject matter that describes the applicant's

invention, particularly as to developing the step of constructing an isotropic ideal window/filter

using isotropic scaling functions and associated translation operators. For each publication,

please provide a concise explanation of the reliance placed on that publication in the

development of the disclosed subject matter.

Specification

2.   The specification is objected to because pages 26-27 contain a list of publications cited

by the specification. According to the MPEP § 609 A(1) "the list may not be incorporated into

the specification but must be submitted in a separate paper." Therefore, Examiner suggests

Applicants file a separate information disclosure statement following the requirements of 37

CFR 1.98(b), which requires a list of all patents, publications, or other information submitted for

consideration by the Office.

Claim Objections

3.   The numbering of the claims is not in accordance with 37 CFR 1.126 which requires the

original numbering of the claims to be preserved throughout the prosecution. There are two

claims that are numbered as claim 3. Misnumbered claims 3-15 have been renumbered as claims

4-16 respectively.

4.   Claims 5-6 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims

2-3 respectively. When two claims in an application are duplicates or else are so close in content

that they both cover the same thing, despite a slight difference in wording, it is proper after

allowing one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

5.   Claims 3 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the enablement requirement. The claim(s) contains subject matter which was not described

in the specification in such a way as to enable one skilled in the art to which it pertains, or with

which it is most nearly connected, to make and/or use the invention.

Referring to claim 3, the specification is non-enabling with regards to using the method

of claim 1 in (i) data compression and storage for streaming video, seismic imaging, or digital

medical imaging of all types, (ii) image and signal enhancement, denoising and analysis for

medical imaging, seismic imaging, satellite imaging and surveillance, target acquisition, radar,

sonar, or pattern recognition and analysis, (iii) volume rendering and segmentation, or motion

analysis, and (iv) as a basis for digital algorithms for solving ordinary and partial differential

equations in science, engineering, economics, and other disciplines. The specification does not

provide enabling support for using the method in each of the specific applications listed above.

A similar rejection is also applicable to claim 6.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
subject matter which the applicant regards as his invention.

6.   Claims 1 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Referring to claim 1, the phrase "A method system" in line 1 renders the claim indefinite

because it is unclear whether the claim is a method claim or a system claim. Because the body of

the claim appears to recite steps, the Examiner will construe claim 1 as a method claim for

examination purposes. Moreover, the phrase "from the isotropic ideal filters" in line 5 further

renders the claim indefinite because it lacks antecedent basis. There is no previous recitation of

the isotropic ideal filters. In addition, the phrase "from the filters" in line 11 further renders the

claim indefinite because it is unclear which filters (filters in line 4 or filters in line 6) is being

claimed. Finally, the phrase "isotropic ideal filters." in line 5 is improper because there is a

period after the word filters. Appropriate corrections are required.

Referring to claim 4, the phrase "A method system" in line 1 renders the claim

indefinite because it is unclear whether the claim is a method claim or a system claim. For

examination purposes, the Examiner will construe claim 4 as a method claim. Appropriate

correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

7.   Claims 11-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed

to non-statutory subject matter. In particular, claims 11-16 recite subject matter that does not fall

within one of the four statutory categories under 35 U.S.C. 101--process, machine, manufacture

or composition of matter. Instead, claims 11-16 appear to merely recite scientific principle

divorced from any tangible structure, which does not fall within the statutory classes. *See*

O'Reilly v. Morse, 56 U.S. (15 How.) 62 (1854).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this
> or a foreign country, before the invention thereof by the applicant for a patent.

8.   Claims 1-11, 14-16 rejected under 35 U.S.C. 102(a) as being anticipated by the article

entitled "Non-separable Radial Frame Multiresolution Analysis in Multidimensions and Isotropic

Fast Wavelet Algorithms" by Papadakis et al. (hereinafter Papadakis).

        Referring to claims 1-11, 14-16, Papadakis discloses the claimed features on pages 1

through 8.[1]

Claim Rejections - 35 USC § 103

        The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

9.   Claims 1-2, 4, 5, 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the

combination of the article entitled "A Kind of 2-D Isotropic Wavelet for Detecting Image

Primitives" by Hou et al. (hereinafter Hou) and the article entitled "Periodic shift-invariant

multiresolution analysis" by Bastys (hereinafter Bastys).

        Referring to claim 1, Hou discloses a method for forming multiresolution wavelets

comprising the steps of:

        constructing isotropic ideal windows in a dimension greater than or equal to 1 [pp. 731-

732, section II. Note that the windows are in two dimensions.],

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[1] The Examiner notes that the Papadakis article has a publication date that is prior to Applicants' filing date of March
12, 2004, but after the provisional filing date of March 12, 2003. In order to receive benefit of the earlier
provisional filing date under 35 USC 119(e) and to overcome the Papadakis article, the Applicant must show that the

constructing translation and dilation operators adapted to form out of the ideal windows

completely isotropic low pass filters, high pass filters and filters that cover a desired frequency

range or plurality of frequency ranges from isotropic ideal filters [pp. 731-735, sections II-VI],

into;

constructing filters from the ideal windows and the translation and dilation operators,

where the filters are selected from the group consisting of low pass filters, high pass filters and

filters that cover a desired frequency range or plurality of frequency ranges [pp. 731-735,

sections II-VI];

constructing scaling functions and associated translation operators for use with low pass

scaling functions; and producing associated wavelets from the filters and the scaling functions

and low pass scaling functions adapted to resolve a multidimensional signal into various

resolution levels [pp. 731-735, sections II-VI, particularly section IV].

Hou does not explicitly disclose that the scaling functions are isotropic. However,

isotropic scaling functions and associated translation parameters for use with low pass scaling

functions were exceedingly well known in the art. For example, Bastys discloses constructing

isotropic scaling functions and associated translation parameters for use with low pass scaling

functions [pp. 398-400 sections 1-2. Note that the Shannon scaling function is construed as

isotropic scaling functions.].

Hou and Bastys are combinable because they are both concerned with multiresolution

wavelet processing methods. At the time of the invention, it would have been obvious to a

person of ordinary skill in the art to modify Hou's scaling functions so that they are isotropic, as

requirements of 112 first paragraph have been met. In particular, Applicants must show how each limitation recited

taught by Bastys. The reason for doing so would have been to enhance the flexibility of the wavelet generation process by using a scaling function that is shift-invariant [Bastys, abstract]. Therefore, it would have been obvious to combine Hou with Bastys to obtain the invention as specified in claim 1.

Referring to claim 2, Hou further discloses dividing each filter into at least one relative low pass component and at least one relative high pass component [pp. 731-735, sections I-VI].

Referring to claim 4, Hou discloses a method for analyzing data comprising the steps of constructing at least one wavelet including filters having at least one ideal window and necessary translation and dilation operators, where the filters are selected from the group consisting of low pass filters, high pass filters and filters that cover a desired frequency range or plurality of frequency ranges [pp. 731-735, sections I-VI].

Hou further discloses scaling functions and associated translation operators for use with low pass scaling functions; and resolving a multidimensional signal into various resolution levels with the at least one wavelet [pp. 731-735, sections II-VI, particularly section IV], but does not explicitly disclose that the scaling functions are isotropic. However, isotropic scaling functions and associated translation parameters for use with low pass scaling functions were exceedingly well known in the art. For example, Bastys discloses constructing isotropic scaling functions and associated translation parameters for use with low pass scaling functions [pp. 398-400 sections 1-2. Note that the Shannon scaling function is construed as isotropic scaling functions.].

Hou and Bastys are combinable because they are both concerned with multiresolution wavelet processing methods. At the time of the invention, it would have been obvious to a

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in the claims are sufficiently supported by the provisional application.

person of ordinary skill in the art to modify Hou's scaling functions so that they are isotropic, as

taught by Bastys. The reason for doing so would have been to enhance the flexibility of the

wavelet generation process by using a scaling function that is shift-invariant [Bastys, abstract].

Therefore, it would have been obvious to combine Hou with Bastys to obtain the invention as

specified in claim 4.

Referring to claim 5, see the rejection of at least claim 2 above.

Referring to claim 7, see the rejections of at least claims 1 and 4 above. Hou and Bastys

do not explicitly disclose a system for processing signals implemented on a computer comprising

a processing unit for performing the steps recited in claims 1 and 4. However, Official notice is

taken that a computer comprising a processing unit for processing signals was exceedingly well

known in the art. Therefore, it would have been obvious to modify Hou and Bastys to include a

computer comprising a processing unit in order to enhance the speed and accuracy of the image

processing technique.

Referring to claim 8, see the rejection of at least claim 2 above.

Referring to claims 9-10, Hou does not explicitly disclose that each relative low pass

component and each relative high pass component further comprises one relative low pass

subcomponents and relative high pass subcomponents. However, Official notice is taken that

each relative low pass component and each relative high pass component having relative low

pass subcomponents and relative high pass subcomponents were exceedingly well known in the

art for wavelength decomposition. Therefore, it would have been obvious to include these

features in Hou and Bastys, in order to perform proper wavelength decomposition.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 571-272-7421. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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